

Work Order ID 144280

Wednesday, May 18, 2016 11:16:58 AM

BHT

144280

Page 1

Item ID: D3443-043 Accept *N900040100* Setup Start *NS1*
 Revision ID: 630-031 *-032 Stop *NS2*
 Item Name: Strut Weldment Assembly
 Start Date: 4/25/2016 Start Qty: 8.00 *8* Cust Item ID:
 Required Date: 5/9/2016 Req'd Qty: 8.00 *8* Customer:
 Reference:

Approvals: Process Plan: dem Date: 16/05/18 Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3443	Rev C								
100	Weld per dwg A/R S.S. rod Batch: <u>126074</u>	0.00							
100	Large Fab								
	Memo	1.20							
	Weld assembly as per dwg D3443								
110	QC9- Inspect visual per QSI004- Fusion Welds	0.00							
110									
QC	Memo	0.00							
Quality Control									
120	QC5- Inspect part completeness to step on W/O	0.00							
120									
QC	Memo	0.16							
Quality Control									

8 16-05-02
JBL

(8) 16-06-06 DAS 9 9-89

(8) 16-06-06 DAS 9 9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Work Order ID 144280

Wednesday, May 18, 2016 11:16:58 AM

144280

Page 3

Item ID: D3443-043 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Strut Weldment Assembly
Start Date: 4/25/2016 Start Qty: 8.00 ***8*** Cust Item ID:
Required Date: 5/9/2016 Req'd Qty: 8.00 ***8*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC21- Final Inspection - Work Order Release	0.00							
160									
QC	Memo	0.80							
Quality Control									

16/6/9 JH

MCS JUN 7 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Picklist Print

Wednesday, May 18, 2016 11:17:05 AM

Page 1
T

Work Order ID: 144280

144280

Parent Item: D3443-043

D3443-043

Parent Item Name: Strut Weldment Assembly

Start Date: 4/25/2016

Required Date: 5/9/2016

Start Qty: 8.00

Required Qty: 8.00

Comments: IPP REV. A 05.11.17 NEW ISSUE EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D3443-3		Manufactured	No			100	Each	13.0000	1	8			
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D3443-3

Clevis

16-05-02
Jm

Location	Loc Qty	Loc Code
WA002	13	
128442	1	
131809	4	
137164	8	

1
4
3

D3443-7		Manufactured	No			100	Each	5.0000	1	8			
---------	--	--------------	----	--	--	-----	------	--------	---	---	--	--	--

D3443-7

Tubing

16-05-02
Jm

Location	Loc Qty	Loc Code
WA002 144739	5	
131711	3	
133907	2	

5
3

D3966-4-750		Manufactured	No			100	Each	208.0000	1	8			
-------------	--	--------------	----	--	--	-----	------	----------	---	---	--	--	--

D3966-4-750

Pin, Dowel

16-05-02
Jm

Location	Loc Qty	Loc Code
WA002	208	
113232	8	
126225	200	

8

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																																																										
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Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

8 7 6 5 4 3 2 1

PARALLEL
FACES

MASK HOLES
2

D3443-1
LUG

D3443-5
TUBING

D3453-1
CLEVIS

MASK HOLES
TYP

C

PRESS FIT D3965-4 SPHERICAL BEARING AFTER
POWDER COAT

8.54

INSTALL D3966-4-750
DOWEL PIN
TYP

0.10
TYP

D3443-041

ITEM	QTY -041	P/N	DESCRIPTION
1	X	D3443-041	STRUT WELDMENT ASSEMBLY
2	1	D3443-1	LUG
3	1	D3443-5	TUBING
4	1	D3453-1	CLEVIS
5	1	D3965-4	BEARING, SPHERICAL
6	2	D3966-4-750	PIN, DOWEL

RELEASED
09/08/25, M2

20160411
SHA 144280

NOTES:

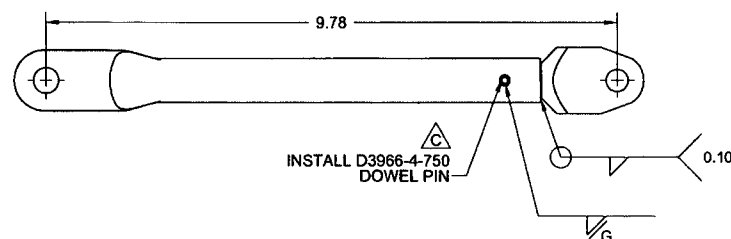
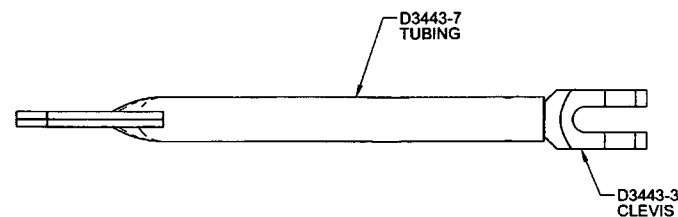
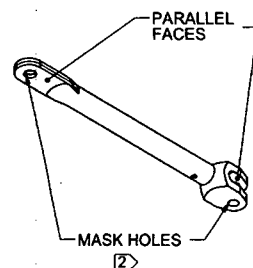
- 1) MATERIAL: N/A
- 2) FINISH: POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3
NO POWDER COAT IN HOLES
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 1.33 lbs
- 8) WELD PER DART QSI 004

C	DRAWING UPDATED TO CURRENT STANDARDS. REVISED NOTE #2 (ZN AB-1, AB-2), 0.820 WAS 0.720 & 1.43 WAS 1.53 (ZN C2-3); 0.551 WAS 0.451 (ZN C1-3); R0.219 WAS R0.050 (ZN C4-3); D3965-4 WAS SPAENAU P/N (ZN C6-1, B5-2); D3966-4-750 WAS McMASTER-CARR P/N (ZN B5-1); REF PAR 09-018	RF	09.06.25
B	ADDED -9 PIN, REMOVED BALL PLUNGER; REVISE TOLERANCE: & Ø0.125 WAS #30	RF	05.12.05
A	NEW ISSUE	RF	05.09.02
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	RF	DRAWING NO. D3443	REV. C
MFG. APPR.	RF	SHEET 1 OF 4	
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	STRUT WELDMENT ASSEMBLY	
DATE	09.06.25	COPYRIGHT © 2005 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1

ITEM	QTY	P/N	DESCRIPTION
1	X	D3443-043	STRUT WELDMENT ASSEMBLY
2	1	D3443-3	CLEVIS
3	1	D3443-7	TUBING
4	1	D3966-4-750	PIN



D3443-043

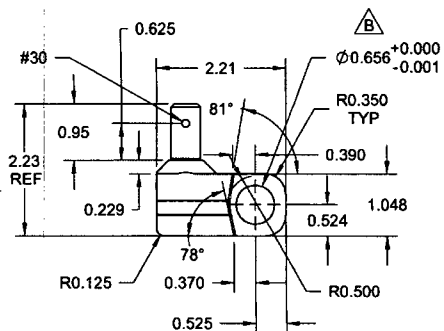
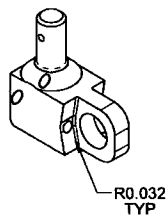
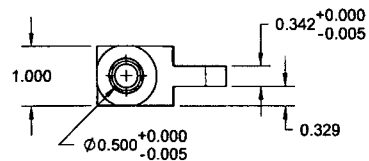
RELEASED
09/08/25/14

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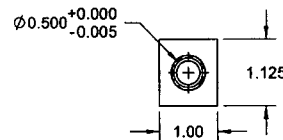
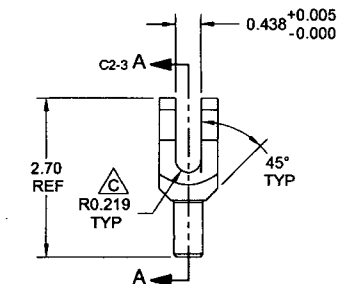
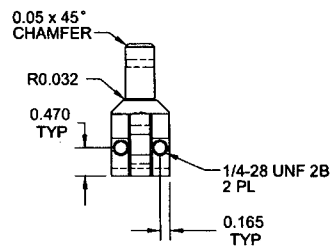
- 1) MATERIAL: N/A
- 2) FINISH: POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3
NO POWDER COAT IN HOLES
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.97 lbs
- 8) WELD PER DART QSI 004

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO.	REV. C
MFG. APPR.		D3443	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		STRUT WELDMENT ASSEMBLY	NTS
DATE	09.06.25	COPYRIGHT © 2005 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

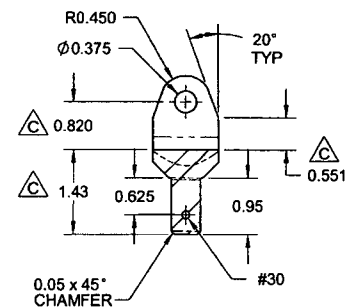
8 7 6 5 4 3 2 1



D3443-1 LUG



D3443-3 CLEVIS



SECTION A-A C4-3

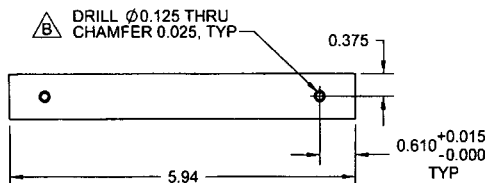


NOTES:

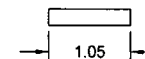
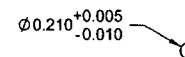
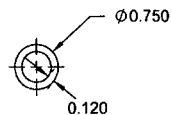
- 1) MATERIAL: D3443-1 = 17-4 SS PER AMS 5604/5643 (REF DART SPEC M17-4B)
D3443-3 = AISI 304 SS ROUND BAR (REF. DART SPEC M304R)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D3443-1 = 0.50 lbs
D3443-3 = 0.35 lbs

RELEASED
09/08/25/14

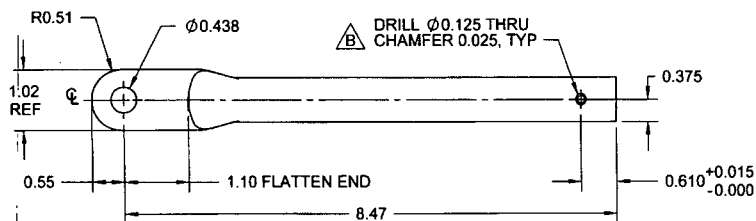
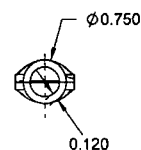
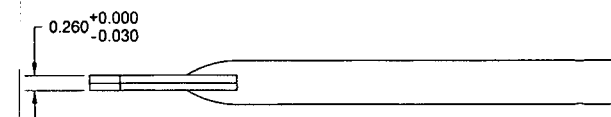
DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. C
MFG. APPR.		D3443	SHEET 3 OF 4
APPROVED		TITLE	SCALE
DE APPR.		STRUT WELDMENT ASSEMBLY NTS	
DATE	09.06.25	COPYRIGHT © 2005 BY DART AEROSPACE LTD	
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D3443-5 TUBING



D3443-9 PIN



D3443-7 TUBING

D3443-9 NOTES:

- 1) MATERIAL: DELRIN II 150R OR ACETRON GP ACETAL (REF. DART SPEC M-DELRIN-R)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: N/A

RELEASED
01/08/25 11/2

D3443-5/-7 NOTES:

- 1) MATERIAL: AISI 316/304 SS SEAMLESS TUBING (REF. DART SPEC M304TR0.750W.120)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.025 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D3443-5 = 0.41 lbs
D3443-7 = 0.62 lbs

DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	DP	DRAWING NO.	REV. C
MFG. APPR.		D3443	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		STRUT WELDMENT ASSEMBLY NTS	
DATE	09.06.25	COPYRIGHT © 2005 BY DART AEROSPACE LTD. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	